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Reply for DETAILED ACTION

Application No. 10/535,438

## Reply for DETAILED ACTION

Office Action Summary: Application No.10/535,438, Art Unit: 2863

USPTO Confirmation No. 6160, Mailing Date : 09/01/2006

### for DETAILED ACTION for Claim Objections

#### Statement of Examiner (all):

Claims 1 and 2 are objected to because of the following typographical errors: The words "determing" (Claim 1, lines 1 and 9), "of:" (Claim 1, line 2), "quantities" (Claim 1, line 4), "rotor,at" (Claim 1, line 4), "ofthe" (Claim 1, line 5), "trans-fering" (Claim 1, lines 9-10), "determing" (Claim 2, line 3), "claim1" (Claim 2, line 3) should spell as - determining, quantities, rotor at, of the, transferring, and claim 1--. Corrections are required.

Claims 2 is objected to because of the following informalities: No transitional phrase. Examiner recommend to replace the words "rotor, that mentioned in the claim1" (line 3) with -- rotor according to claim 1 --.

#### Reply of Applicant:

Applicant amended Claims 1 and 2 in accordance with the above statement for typographical errors. For informalities, Applicant amended Claims 2 as following:

"2. The computer, measuring instrument and testing device which the geometric vector calculating method of the claim 1 is directly or indirectly applied or equipped for determining the dynamic unbalance in rotor."

Please confirm the enclosed sheet of page 8 amended.

### for Claim Rejections - 35 USC § 101

#### Statement of Examiner (all):

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 1 and 2 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subjected matter.

With respect to claim 1 and 2, the method of determining the dynamic unbalance in rigid rotor of the industrial rotating machine in field balancing do not produce any tangible result. The practical application of the claimed invention cannot be realized until the information determined is conveyed to the user. For the result to be tangible, it would need to a user, displayed to a user, stored for later use, or used in any tangible manner. Hence, the claims are treated as non-statutory functional describe material (See MPEP Sec. 2106 and [http : //www.uspto.gov/web/offices/com/sol/oq/2005/week47/patqupa.htm](http://www.uspto.gov/web/offices/com/sol/oq/2005/week47/patqupa.htm)).

#### Reply of Applicant:

On the Applicant's argument filed 07/31/2006, Applicant stated that this applicant is using the technical terms ; e.g. dynamic unbalance, balancing machine, specific unbalance, field balancing,

which are cited from ISO 1925: "Mechanical vibration-Balancing-Vocabulary", 1990.

The "dynamic unbalance" is defined as following selections in this ISO 1925, 3 Unbalance, P. 4-5 :

**3.9 dynamic unbalance** : That condition in which the *central principal axis* is not parallel to and does not intersect the *shaft axis*.

NOTE — The quantitative measure of dynamic unbalance can be given by two complementary *unbalance vectors* in two specified planes (perpendicular to the shaft axis) which completely represent the total *unbalance* of the rotor.

**3.2 unbalance vector** : Vector whose magnitude is the *amount of unbalance* and whose direction is the *angle of unbalance*.

**3.3 amount of unbalance** : Quantitative measure of unbalance in a rotor (referred to a plane), without referring to its angular position. It is obtained by taking the product of the unbalance mass and the distance of its center of gravity from the shaft axis.

#### NOTES

1. Unit of unbalance are, for example, grams millimeters and ounces inches.
2. In certain countries, the terms "weight" and "mass" are used interchangeably.

**3.4 angle of unbalance** : Given a polar coordinate system fixed in a plane perpendicular to the shaft axis and rotating with the rotor, the polar angle at which an unbalance mass is located with reference to the given coordinate system.

Because of the above ISO definitions, Applicant has been understanding that the term of "dynamic unbalance" is naturally a tangible information for user. According to the statement, However, for make sure, Applicant would like to replace the word "c. determining the dynamic unbalance" with ---c. determining the dynamic unbalance including two amounts and angles of unbalance vectors---.

Please confirm the amended sheet of P. 8 enclosed.

#### *for Response to Argument*

##### **Statement of Examiner (main)**

Regarding the 35 U.S.C. 101 rejections, Applicant attempted to amend claim 1 to overcome 101 rejections.

However, with respect to the 35 U.S.C. 101 rejections have been fully considered but they are not persuasive.

Examiner recommends Applicant to add a disclosed final step to output the result (dynamic unbalance in rigid rotor) to a user, displayed to a user, stored for later use, or used in any tangible manner.

##### **Reply of Applicant:**

With respect to claim 1, according to the statement, Applicant would like to amend the final step c. of claim 1 as following:

"c. determining the dynamic unbalance including two amounts and angles of unbalance vectors in two specified correction planes of the rigid rotor, by the geometric vector calculation based on the statics theorem which is using with the ratios concerning the relative distance lengths for the bearings of rotating machine and the two specified correction planes of rotor, which means that the unbalance centrifugal forces at the two bearings of the rotating machine can be transferred to the rotor body."

**Applicant's own amendments :**

Applicant replaced as following :

The words "the steps of : " (Claim 1, lines 2) with—the following steps : —,  
"frequency ratios, damping ratios." (Claim 1, lines 8) with—the measured or estimated frequency ratios,  
damping ratios of the bearing-and-rotor system.—,  
"statics" (Claim 1, lines 12) with—statics theorem—.

**Summary of Applicant's replies:**

Applicant will send the amended page 8 (Claims) to USPTO within this October.

Place/Date : Tokyo/ Oct.13, 2006

Applicant / Inventor:

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